

B-37 BC The Service of materials with concentrated ammonia solutions. T. J. Smith, A. J. Smith, and A. J. Smith, in: <i>Journal of the American Chemical Society</i>, Vol. 70, No. 1, 1948, pp. 1-10. (10-1-48) is now available with <i>Chemical Abstracts</i>, Vol. 42, No. 1, 1948, p. 1. Translation by <i>Chemical Abstracts</i>, Vol. 42, No. 1, 1948, p. 1.									
ASD-31A METALLURGICAL LITERATURE CLASSIFICATION FROM SYMBOLS TO SYMBOLS TO SYMBOLS TO SYMBOLS									

LITYŃSKI, T.

✓ A comparison of the fertilizer value of calcined phosphate ground incompletely and ground to dust. T. Lityński, H. Jurkowska, and A. Kurowska. *Ileak. polon. sci., Classe sci. math., Rept. C.R.M.* No. 5/10; 2 pp. (1951); *Soils and Fertilizers, Commonwealth Bur. Soil Sci.* 16, 132(1953).—Six different fractions of the phosphate were obtained by passing it through sieves of 484, 101, 1840, and 4500 meshes/sq. cm. Three fourths of the dust and 1/2 of the incompletely ground phosphate were of the finest fraction. Acid soil prior to P received 0.5 g. of P_2O_5 /pot in addn. to N and K. Pulverization increased soy. from 19.12 to 28%. The dust contained 26.58% and the incompletely ground fertilizer contained 24.72% of sol. P_2O_5 . Each fertilizer increased grain yield 2 fold. K. L. C.

LITYNSKI, T.

Litynski, T.; Jurkowska, H.; Zak, Z. "Influence of Lignite on the Production of Citric Acid by Aspergillus Niger" p. 291 (Acta Microbiologica Polonica, Vol. 1, No. 4, 1952, Warszawa)

SO: Monthly List of East European Vol. 3, No. 3 March 1954, Uncl.
Library of Congress

BA
BTL

Comparison of the fertilizing power of finely- and coarsely-ground
calcined calcium phosphate. T. Lityński, H. Jurkowska, and A.
Kurkowska (Przem. chemic., 1952, 5, 106-110).—Coarsely-ground
calcined phosphate (50% retained by a sieve having 4500 apertures
per sq. cm) is as effective as when the particles are smaller.
R. TATSCOR.

18.04
18.11

Fertilizer value of Polish brown coal. H. T. Latynski, H. Jurkowska, and Z. Pycela (*Przem. chm.*, 1962, 8, 318-320).—
The yield of oats grown in sand is increased 80–90% by addition of 0.03–1% of brown coal. R. Tawecor.

LITYŃSKI, T.

Fertilizer value of Polish brown coal. III. Sorption of ammonia by the coal. T. Lityński, R. Zuliński, and Z. Zak. *Przemysł Chem.* 8, 554-5 (1952); *Ch. C.A.* 47, 10164g.— The coal has a cation-exchange capacity of 170 meqs. per 100 g. filled normally by metal cations 125, NH_4^+ 15, and H^+ 50 meqs. Satn. of the coal with NH_3 in damp air gives a product contg. 168 meqs. of NH_4^+ per 100 g., which readily gives up NH_3 to H_2O or 2% aq. citric acid; at the same time up to 7% of the humic acids passes into soln. The ammoniated brown coal should be a valuable fertilizer. B. A.

CH

(2)

Polish Technical Abst.
No. 4, 1953
Chemistry and Chemical
Technology

2443

631.82:622.332

Litynski T., Zulinski R., Zak Z. The Fertilizing Value of Polish Brown Coal.
Wartosc nawozowa krapjowego wegla brunatnego. Przemysl Chemiczny, No. 12, 1952, pp. 554-568, 3 figs., 4 tabs.
Since certain chemical difficulties may occur in the use of ammonia as a liquid nitrogen fertilizer the authors propose the use for this purpose of Polish brown coal saturated with ammonia. Properly prepared coal-ammonia products contain about 25% or 5% of ammonia; the entire quantity of nitrogen introduced with these preparations is available to plants, and in addition to the nitrogen a quantity of humus appears in a water-soluble form. Since humus stimulates the growth of plants, the fertilizing efficiency of coal-ammonia products may be higher than that of pure ammonia or of coal individually. Thus is made possible the introduction into agriculture of both ammonia and indigenous brown coal as crop improvers.

CA

Sails & Fertilizers '5-

Polish brown coal as a fertilizer material. T.-Lityński and H. Jurkowska. *Przemysł Chemicz.* 31, 13-17(1952).— The value of Polish brown coal as a fertilizer material was investigated. Expts. carried out with *Aspergillus niger* show that brown coal stimulates the growth of *A. niger* and that this action probably depends on the influence of trace elements and humus. In addn., the coal was found to act as a good sorbent of toxic substances. Frank Gonet

LITINSKI, T.

Influence of lignite on citric-acid production by *Aspergillus niger*. T. Litinski, 1. Juchowicz, and Z. Zak. *Acta microbiol. polon.* 1953, 10: 1-14. The production of citric acid by *A. niger* on a medium containing 10-14% sucrose, 0.22-0.5% NH_4NO_3 , 0.1-0.5% K_2HPO_4 , and 0.02-0.25% $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ is increased more than twofold by the addition of 0.25 g. of lignite per 50 ml. of culture. This stimulating influence is exerted to a lesser degree by the lignite-ash and 0.1N-NaOH extract of lignite. The increase in acid production depends at least partially on the detoxicating effect of lignite as shown by the cultures of *A. niger* in which the acid production was inhibited by high Fe concn. The yield of citric acid from melatonin is unexpectedly reduced by additions of lignite. S. K. Jachowicz.

LITYNSKI, T.

LITYNSKI, T. JURKOWSKA, H.

(Glaucanite as a source of potassium for *Aspergillus niger*. Acta
microbiol Pol 2 no.1:44-57 '53. (KHAL 3:3)

1. Z Zakladu Chemii Rolnej UW Krakow.
(*ASPERGILLUS*,
**niger*, potassium metab., sources)
(*POTASSIUM*, metabolism,
**Aspergillus niger*, sources)

Effects of granulation and placement of calcined phosphate on grain yields. T. Litvinski, E. Goriach, and K. Wagner (Rozn. Nauk Rol., 1955-61, 2, (3), 71-82).—Calcined phosphate, whether powdered or granulated, when placed in furrows was not as effective as was broadcast material in increasing yields of oats and barley. For cereals calcined phosphate should be applied in powdered form and broadcast as evenly as possible. A. H. CORNWELL.

LITYNSKI, T.

3641

541,8001 : 552,541(438)

Lityński T., Zuliński H., Wagner K. Investigations over the Solubility of Certain Limestones of Polish Origin.

„Badania nad rozpuszczalnością różnych wapieni krajowego pochodzenia”. Cement, Wapno, Gips, No. 4, 1934, pp. 66-76, 12 figs., 7 tabs.

Limestone is used to fertilize sour soil. Limestone shifts the pH of the soil to the alkaline side and changes the soil reaction. In order to

determine the suitability for soil neutralization of five different varieties of limestone of Polish origin, the authors examined their solubility in water saturated with CO_2 , and in buffered acetic acid. It was found that the method based on measuring changes in the pH of the solutions in water saturated with CO_2 was not suited for measuring the solubility of limestones, because it did not make clear the differences existing between them. On the other hand, the second method, which consists in measuring the solubility of limestones in acetic acid, buffered up to pH 4.1, is an easy way of estimating their suitability as fertilizers.

CH

(2)

LITYŃSKI, T.

4

1503 631.632.722:631.615.2
Lityński T., Jurkowska H., Gorlach E. Fertilizer Value of a New Polish
Magnesium Thermophosphate.

POL. E

„O wartości nawozowej nowego krajowego termofosfatu magnezowego” *Przemysł Chemiczny*. No. 3, 1954, pp. 128—129, 3 figs., 7 tabs.

Here are given the results of pot experiments with new Polish thermophosphate prepared by the Institute of Sulphuric Acid and Phosphate Fertilizers. The new thermophosphate is produced by using serpentine, which eliminates soda from the process, as basic raw material. The fertilizer effect of the new product on Italian rye-grass (*Lolium multiflorum*) is equivalent to the effects of calcinated phosphate and superphosphate. It may be supposed that magnesium thermophosphate will be successfully employed in agriculture as a new valuable phosphate fertilizer.

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M 87

LITYŃSKI, T.

POL.

1339

631.416.3:66.012:631.926

Lityński T., Jurkowska H., Gorlach E. The Influence of Pulverisation of Magnesium Thermophosphate on its Effect as Fertilizer.

„O wpływie rozdrobienia termofosfatu magnezowego na jego efekt nawozowy”. *Przemysł Chemiczny*. No. 4, 1954, pp. 187—190, 5 figs., 4 tabs.

The influence of pulverisation of the new Polish magnesium thermophosphate on the growth and crop of plants was investigated by means of pot experiments with Italian Rye-grass (*Lolium multiflorum*). For the experiments were used: one unground product together with three of products ground each to a different degree: 4900, 1600 and 300 meshes. The degree of pulverisation influenced the assimilation of phosphorus and the crop of rye-grass. The maximum fertilizer effect was obtained at 4900 meshes, the effect at 1600 meshes was almost the same; the effect was much lower at 300 meshes and lowest with the unground product. The experiments showed that the 1600 mesh product is sufficiently ground, i.e. the standards for basic slag can be applied to the new magnesium thermophosphate. Standards of pulverisation are to be established definitively on the basis of field experiments.

LITYNSKI, T

LITYNSKI

3

3504 661.032.723 : 631.815.2

Litynski, T., Wollas, R. On the Method of Estimating the Fertilizer Value of the New Polish Magnesium Thermophosphate.

„Z badań nad metodyką oceny, wartości odżywczej nowego krajowego termofosfatu miedziowego”. Przemysł Chemiczny. No. 8, 1954, pp. 415-417, 1 fig., 2 tabs.

POL. 3

The influence of ratio: substance-solvent on the solubility of tricalcium, calcinated phosphate, and the new Polish magnesium thermophosphate (produced by the Sulphuric Acid and Phosphate Fertilizers Institute) in 2% citric acid. It is confirmed that the existing method of F. Wagner, satisfactory for calcinated phosphate, should be modified for magnesium thermophosphate, by extending the substance-solution ratio from 1:100 to 1:200, this being an essential condition for the stabilization of the quantity of phosphorus soluble in citric acid in the new phosphate fertilizer.

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LITYNSKI, T.; JURKOWSKA, H.; GORLACH, E.

"Influence of the Pulverization of Magnesium Thermophosphate on its Fertilizing Quality." P. 187. (PRZEMISL CHEMICZNY, Vol. 10, No. 4, Apr. 1954, Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1, Jan. 1955 Uncl.

~~TADEUSZ LITYNSKI~~

LITYNSKI, Tadeusz

Solubility of different Pollak. Limestone. Tadeusz Litynski, Roman Zolinski, and Krystyna Wagner. Cement (Warsz) 10, No. 19, 66-70 (1954).—Usefulness of powdered limestones (I) for the neutralization of the soil acidity are established by the solubility of I in a solution of AcOH, buffered to pH 4.1. First determine the amount of CaCO_3 in I by the method of Scheibler. Then take an amount of I which corresponds to 3 g. of CaCO_3 and place it in a 500-ml. Stollman flask. Add 200 ml. of AcOH solution of pH 4.1, prepared by mixing 325 ml. 0.1N AcOH with 175 ml. 0.1N NaOH. Close the Stollman flask with a rubber stopper and agitate at 15 r.p.m. Filter, take 20 ml., and titrate with 0.1N NaOH with phenolphthalein. The amount of CaCO_3 found by titration represents the "active" CaCO_3 . The results obtained by the above method differ from the results obtained by method of Balks and Wehrmann (C.A. 33, 1833) and modified by Bolschof and Hebert (C.A. 42, 2701) which uses NH_4 oxalate for a similar determination.
Frank J. Hemmel

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Litynski, T

(1931)

031.83.605.042.002.01

Litynski, T., Jurkowski H., Gorlach E. Preliminary Research over the Value of Cement-Dust from Electrofilters as a Potassium Fertilizer.

„Wstępne doświadczenia nad wartością pyłu cementowego z elektrofiltrów jako nawozu potasowego”. Cement-Wapno-Gips. No. 3, 1953, pp. 57-62, 5 figs. 8 tabs.

Preliminary experiments were carried out to determine whether it is possible to use as a fertilizer cement dust from electrofilters, containing about 6 per cent of K_2O . The cement dust proved a good source of potassium for rye-grass and sunflower; moreover the presence of certain other components, such as lime, silica and microelements, favourably influences the development and yield of crops. The presence of lime makes it possible to regard cement dust as a potassium-lime fertilizer. The low potassium content strongly suggests that the dust ought to be processed in order to obtain a more concentrated product with greater fertilizing properties.

AG

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4001

853.55.001.5:546.41.04:546.46.04

Jidyński T. Determination of Calcium and Magnesium in Pure, and
Mylonite Limestones.

"O orn tranlu wapnia i magnezu w wapniach czystych i dolomit-
owych", Cement-Wapno-Gips. No. 4, 1955, pp. 81-82.

The author draws attention to the method, developed by H. Woj-
na, of oximetric determination of minute quantities of magnesium
with the use of hydroxyquinoline, and recommends this method for
extensive use in all lime plant laboratories for rapid, large-scale de-

terminations. An example of analysis is quoted. The hydroxyquinoline
method makes it possible to determine small, 0.02 to 5 mg. quantities of
magnesium.

LITYNSKI, TADEUSZ

P O L .

Preliminary experiments on value of cement dust from electrical precipitators as potassium fertilizer. Tadeusz Litynski, Halina Jurkowska, and Eugeniusz Gortach. *Gerem-Hopod-Gips* 11(29), 57-62(1968).—It is shown in pot expts. that dust recovered from a Cottrell elec. precipitator of a cement mill is a good K and Ca fertilizer for *Helianthus annuus* (I) and *Lolium multiflorum* (II). The cement dust contained: Al_2O_3 14.26, Fe_2O_3 2.50, CaO 29.20, MgO 1.80, Na_2O 0.60, K_2O 5.84 (approx. 5.3% is sol. in water), SiO_2 20.20, SO_3 3.46, and calcining loss 22.40%. The soil, used in expts., was a sandy clay of a pH (in KCl) 5.41 and with 9.7 mg. $K_2O/100$ g. of soil. To each pot, contg. 8.5 kg. of soil, were added: 0.8 g. of N (in the form of NH_4NO_3), 0.6 g. P_2O_5 (in the form of $Ca(H_2PO_4)_2 \cdot H_2O$), 0.1 g. MgO (in the form of $MgSO_4 \cdot 7H_2O$), 16.5 mg. of borax, 6.75 mg. of $MnCl_2 \cdot 4H_2O$, and 4.41 mg. of $CuSO_4 \cdot 5H_2O$. The pots were watered during expts. with dist. water up to 60% of the max. water capacity of the soil. In each pot were put 11 seeds of I. After 6 weeks, green I was cut off and weighed. From pot no. 1, which did not contain any K fertilizer, the weight of the green I was 19.7 g., from pot no. 2, contg. KCl fertilizer in an amt. = 0.6 g. K_2O the weight was 46.9, and from pot no. 3, contg. cement dust as fertilizer in an amt. = 0.6 g. K_2O the weight was 98.2 g. To the same pots 11 seeds of I were then added (after first adding 0.2 g. of N). After 8 weeks the green mass weighed from pot no. 1 5.3, from pot no. 2 15.0, and from pot no. 3 110.8 g., i.e., even higher than from the first vegetation. The amt. of K_2O in the green mass from the first and second vegetation was in pot no. 1 75 and 42, resp., in pot no. 2 314 and 47, resp., and in pot no. 3 631 and 371, resp. The results with II were not as striking as with I, the reason being that II does not require a Ca fertilizer.

P. J. Hendel

LITYNSKI, T.

POL. 1

Determination of calcium and magnesium in pure and dolomitic limestones. Tadeusz Litynski. *Cement-Wapno-Gips* 11(20), 81-2(1955). ~~L. Litynski~~ ^C ~~Sci.~~ ^{lime lats.} to adopt the recent method of Wojtas (*Przemysl Chem.* 30, 640(1954)) for detg. small quantities of Mg (0.02-0.5 mg.). The method is based on pptn. of Mg by 8-quinolinol (1), dissolving the ppt. in H_2SO_4 , and detg. by titration with $KMnO_4$ soln. P. J. Hendel.

APR 8 1956

LITYNSKI, T.; JURKOWSKA, H.; PIENIAK, D.

Effect of fluorine on *Aspergillus niger*. Acta microb. polon
5 no.1-2:147-164 1956.

1. Z Katedry Chemii Rolnej WSR w Krakowie.

(FLUORIDES, effects,

sodium fluoride on *Aspergillus niger* (Pol))

(*ASPERGILLUS*, effect of drugs on,
niger, sodium fluoride (Pol))

LITYNSKI, J.

Poland/Chemical Technology. Chemical Products and Their Application -- Fertilizers,
I-6

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5060

Author: Litynski, J., Bezwinska, M.

Institution: None

Title: Calcium Silicate Slag as a Lime Containing Fertilizer

Original

Publication: Przem. chem., 1956, 12, No 7, 399-400

Abstract: Growing experiments with alfalfa have shown that Ca-silicate slag, a byproduct of the production of CaSi_2 from CaC_2 , sand, coal and lime, containing ~45% CaO as CaSiO_3 , is a more effective lime-containing fertilizer than pure CaCO_3 .

Card 1/1

LITYNSKI, T.

"Local raw materials used in the production of potassium for agriculture."

p. 276 (Przemysl Chemiczny) Vol. 12, no. 5, May 1956
Warsaw, Poland

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,
April 1958

POLAND/Chemical Technology. Chemical Products and Their Applications. Fertilizers. H

Abs Jour : Ref Zhur-Khimiya, No 6, 1959, 20038

Author : Litynski, Tadeusz; Jurkowska, Halina;
Sikora, Henryk

Inst : -

Title : Production of Ammonium Bicarbonate and
Its Use as a Fertilizer.

Orig Pub : Przem. chem., 1958, 37, No 6, 408-411

Abstract : The problem concerning the expedient production of NH_4HCO_3 (I) from NH_3 , and of CO_2 waste gas from the production of synthetic NH_3 is examined. Data on the production of I, the expansibility of vapors and solubility of I under different temperatures are

Card : 1/2

14-22

LITYNSKI, T.

For the proper valuation of magnesium thermophosphate and phosphorite meal as fertilizer. p. 85

PRZEMYSŁ CHEMICZNY. (Ministerstwo Przemysłu Chemicznego i Stowarzyszenie Naukowo-Techniczne Inżynierów i Techników Przemysłu Chemicznego) Warszawa, Poland. Vol. 38, no. 2, February, 1959

Monthly List of East European Accessions (EEAI) LC, Vol 8, no. 8, August, 1959 Uncl.

LITYNSKI, Tadeusz

Floating dust from rotary cement kilns as fertilizer. Przem chem
39 no.5:260-262 My '60.

1. Katedra Chemii Rolnej, Wyzsza Szkola Rolnicza, Krakow

DOMNICZ, Antoni; JAGIELSKI, Aleksy; LITYNSKI, Tadeusz; LAZARSKA, Barbara;
LAZARSKI, Roman

Contamination of Polish soils with strontium-90. Nukleonika 6 no. 2:135-138
'61.

1. Wyższa Szkoła Rolnicza, Krakow, Katedra Chemii Rolnej i Katedra Fizyki.

LITYNSKI, Tadeusz

Some current problems of agrochemistry in Poland. Agrochem
talajtan 11 no.2:285-289 Je '62.

LITYNSKI, Tadeusz (Krakow)

Industry and agriculture. Wszechswiat no.11:273-278 N
'62.

~~LIBRARY~~ Sciences (Krakow)

Role of science in the protection of human health from nuclear
radiation. Wzzechswiat no.6:150-151 Je '62.

LITYNSKI, Tadeusz; MAZUR, Kazimierz

Reserve fertilization with phosphorite meal. Postępy nauk roln
10' no.1:27-32 Ja-F '63.

LITYNSKI, Tadeusz; DOMNICZ, Antoni

Possibilities and methods of stopping the accumulation of radio-
active Sr^{90} in plants. Postępy nauk roln 10 no.3:121-126 My-Je'63

LITYNSKI, Tadeusz

Cement kiln dusts from rotary kilns as potassic fertilizers.
Zemljiste biljka 11. no.1/3:291-301 '62

1.Chair of Agricultural Chemistry, College of Agriculture,
Cracov, Poland.

LITWINSKI, Tadeusz; WASIK, Feliks

Apropos of the Sulzberger-Gabre disease, exudative discoid and lichenoid chronic dermatosis. Przegl. dermat. 51 no.1:39-46
Ja-F '64

1. Z Kliniki Dermatologicznej Akademii Medycznej we Wrocławiu
(Kierownik: doc. dr. J. Kubicz).

LITWINSKI, Tadeusz; JASZEWSKA-CWIAKALOWA, Izabella

Naevoxanthoendothelma (MC Donagh) with co-existing blue sclera and hydrocele. Przegl. dermat. 51 no.2:147-152 Mr-Apr '64.

1. Z Kliniki Dermatologicznej Akademii Medycznej we Wrocławiu (Kierownik: doc. dr J. Kubicz).

SHEKHETS, V.P.; LITYUGA, V.S.; ANTONOV, P.K.; KHLEVNYUK, S.S.

Semiautomatic machine for testing disk springs. Mashinostroitel'
no.7:10 J1 '63. (MIRA 16:9)
(Springs (Mechanism)--Testing)

LITYUK, S.G. (s.Mezhirsch', Cherkasskaya oblast')

Experience in conducting an agricultural excursion. Mat. v shkole
no.5:52-54 S-O '56. (MIRA 9:10)

(School excursions)

LITZMANN, O.

Electronic structure of metals and Brillouin's zones.

p. 61 (Pokroky Fysiky Pevnych Latek) Vol 4, 1957. Praha, Czechoslovakia.

SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, no 1 Jan 1958

LITZMAN OTTO

CZECHOSLOVAKIA/Solid State Physics - Solid State Theory

E-2

Abs Jour : Ref Zhur - Fizika, No 5, 1958, No 10541

Author : Litzman Otto

Inst : Karlovy University, Prague, Czechoslovakia

Title : Method for Calculating the Vibrations of the Disturbed Atomic Chain

Orig Pub : Ceskosl. casop. fys., 1957, 7, No 4, 341-347

Abstract : A simple method is given for calculating the spectrum of isolated vibrations of the atomic lattice. For simplicity the author considers the case of disturbance of homogeneity of a linear chain. The method reduces to solving an algebraic equation of the same order as the number of atoms of disturbed portion of the chain.

Card : 1/1

LITZMAN, OTTO

CZECHOSLOVAKIA/Electricity - Semiconductors

G-3

Abs Jour : Rof Zhur - Fizika, No 10, 1958, No 23156

Author : Litzman Otto

Inst : Karlovy University, Prague, Czechoslovakia

Title : Local Oscillations of Diatomic Linear Chain with Defects

Orig Pub : Ceskosl. casop. fys., 1957, 7, No 6, 641-650

Abstract : A formula is derived for the frequencies of the local oscillations of diatomic chains with defects. The general formula is used for the following particular cases: one atom of chain replaced by a foreign atom, one atom is absent, and a general case of symmetrical defects. The number of local oscillations in the case of an arbitrary symmetrical defect can be determined from the distribution of the characteristic numbers of a determined Jacobi matrix, whose order is approximately equal to half the number of the defects in the chain. The distribution of the characteristic numbers can be determined approximately even without solving the corresponding secular equation, with the aid of simple algebraic aberrations.

Card : 1/1

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Card : 1/1

LITZMAN, O.

EAST GERMANY/Solid State Physics - Solid State Theory. Crystal-
lization : B-2

Abs Jour : Ref Zhur - Fizika, No 5, 1959, No 10524

Author : Litzman O.

Inst : Karlova University, Prague, Czechoslovakia

Title : Local Oscillations of a Linear Diatomic Chain

Orig Pub : Festkorperphysik und Physik Leuchtstoffe. Berlin, Akad.-Verl.,
1958, 143-146

Abstract : Communication made at the Congress of the Physical Society
of East Germany (Abstract 10513). The author considers a
one-dimensional diatomic lattice, with a relatively small
portion that contains defects in the lattice sites. The
frequencies of the "local" oscillations, which characterize
the distorted portion of the lattice, are calculated. These
frequencies may lie in a region that is forbidden for an
ideal lattice (between the acoustic and optical bands: above
the optical band). The expressions become simpler if the
defect is symmetrical

Card : 1/1

AUTHOR: Litzman, Otto

CZECH/37-58-6-2/30

TITLE: Localised Vibrations in Imperfect Space Lattices
(Lokální kmity v porušených prostorových mřížkách)

PERIODICAL: Československý časopis Pro Fysiku, 1958, Nr 6,
pp 643 - 649 (Czech)

ABSTRACT: In previous papers (Refs 1, 2), the author has investigated the conditions under which localised vibrations can occur in an imperfect linear chain of atoms. The methods developed there are now expanded to a space lattice. The defect, which may be any type of point defect, is placed in the centre of a cube. We call the whole region of the cube Γ and divide it into two zones, Λ , containing the defect and all the atoms directly interacting with it and Ω . $\Omega = \Gamma - \Lambda$, $\Lambda \ll \Omega$. The potential energy and the equations of motion are then written down for each zone (Eqs 1, 2). The indices have the following meanings: $\bar{m}$, $\bar{n}$ give the position of the cell; μ, ν give the number of the atom in the cell; i, j are the co-ordinates; s_i are the distances of the atoms from the equilibrium positions. U replaces V for potential, if the crystal is defective.

Card1/3

Localised Vibrations in Imperfect Space Lattices CZECH/37-58-6-2/30

First, the atoms in zone Λ are considered fixed (i.e. of infinite mass) and the vibrations of the whole lattice are studied. The upper limit of the frequencies Ω of these oscillations will not be higher than that of the perfect lattice.

The solutions of the equations of motion (1) and (2) are sought in the form of complex sums, Eqs (4) and (5). After some algebraic operations a system of 3Λ homogeneous algebraic equations for the same number of unknowns $s_{\vec{n}\vec{v}j}$ is obtained (Eq (10)).

If θ is the maximum frequency of vibrations for a lattice which is perfect over the whole region, then we are only interested in the frequencies ω of local vibrations of the imperfect lattice such that $\omega > \theta \geq \Omega(\Lambda)$, as given by Eq (11). In this case, the factors $B_{\vec{m}\vec{u}i}, s_{\vec{n}\vec{v}j}$ in Eq (10) can be approximated by Eq (16). The other coefficients in (10) are the known elastic constants and masses of the atoms in the region Λ .

If in the vibrational spectrum of the region Λ , calculated under the assumption that the atoms in region Ω are fixed, there are n frequencies ω_{Λ} larger than the highest

Card2/3

CZECH/37-58-6-2/30

Localised Vibrations in Imperfect Space Lattices

frequency of the undisturbed region Γ , then there are at least n localised vibrations of the whole imperfect region Γ . The frequencies of the localised vibrations are at least as large as ω_{Λ} . This is a rough criterion for the existence of localised vibrations. It is somewhat similar to that given in the work of Fues and Stumpf (Ref 4). There are 4 figures and 5 references, 2 of which are Czech, 1 Soviet and 2 German.

ASSOCIATION: Katedra teoretické fyziky Karlovy university v Praze
(Department of Theoretical Physics, Charles University, Prague)

SUBMITTED: March 25, 1958

Card 3/3

Localized vibrations in a simple cubic lattice: one impurity atom, interaction with six nearest neighbors. Otto Litzman (Karlova Univ., Prague). *Czechoslov. J. Phys.* 8, 433-47 (1958) (in English).—Criteria are deriv. for the production of localized vibrations in a simple cubic lattice in which one atom is replaced by an impurity atom. The agreement between approx. and exact criteria is better in the case of a 3-dimensional cubic lattice than for a linear chain (C.A. 53, 13785i). A. Krenheller

FREJKA, B.; FAIT, M.; LITZMAN, O.; FREJKOVA, M.

Measurement of anterior torsion of the femur. Description of the method used at the orthopedic clinic in Brno. Acta chir. orthop. traum. cech. 26 no.5-6:400-408 Nov 59.

1. Ortopedická klinika university v Brne, prednosta prof. dr. lek. ved. B. Frejka.
(HIP, fract. & disloc.)

LITZMAN, O.

3
/ Moments of frequency spectrum and thermodynamic functions of crystals with defects. Otto Litzman (Brno Univ., Czech.). *Czechoslov. J. Phys.* 9, 692-700 (1959) (in English). —1. combines the method for calcg. the vibrational frequencies of a perturbed crystal lattice with the contour integral method to compute additive frequency functions. The method allows one also to approx. changes in thermodynamic functions and sp. heat in the case of a monatomic chain perturbed by one foreign atom (Yamahuzi and Tanaka, *CA 51*, 6722). A. Kremheller

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S/058/62/000/004/091/160
A061/A101

AUTHORS: Litzman, O., Celý, J.

TITLE: Frequencies and thermodynamic functions of imperfect crystal lattices

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 2, abstract 4E12 (Spisy přírodověd. fak. univ. Brně, 1961, no. 2, 73-92, German; Russian summary)

TEXT: The results of previous investigations (RZhFiz, 1958, no. 5, 10541; 1959, no. 12, 27321; 1960, no. 8, 20084, no. 10, 26453) on the theory of local vibrations in imperfect crystals are briefly described. In calculating the frequencies, the rapid attenuation of the vibration amplitude with increasing distance from the site of the imperfection is taken into account, and only a small number of atoms within the region of the imperfection is considered. Using this method, the frequencies of local vibrations are numerically calculated in a linear chain and in a simple cubic lattice with a single impurity atom. The free energy, the energy and entropy of imperfect crystals are considered at various temperatures. A numerical calculation is carried out to determine the

Card 1/2

Frequencies and thermodynamic functions ...

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change in the vibration energy ΔE of the linear chain due to the introduction of the impurity atom. Diagrams of ΔE as a function of temperature are presented. /c

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M. Krivoglaz

[Abstracter's note: Complete translation]

Card 2/2

LITZMAN, Q.

On the calculation of the Debey-Waller factor of alloys.
Chokhosl fiz zhurnal 13 no.8:558-565 '63.

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LEFTER, Virgil, ing.; LIUBA, Valer, laureat al Premiului de Stat, ing.

New unitary series of 0,8-100 kw asynchronous motors.
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1. Ministry of the Machine Building Industry (for Leftar).
2. Head of Laboratory, Research and Electrotechnical Planning
Institute (for Liuba).

L 24301-66 EWT(m) DIAAP

ACC NR: AF6006795

SOURCE CODE: UR/0386/66/003/001/0015/0021

43B

AUTHOR: Zolin, L. S.; Kirillova, L. F.; Liu, Ch'ing-ch'iang; Nikitin, V. A.; Pantu-
yev, V. S.; Sviridov, V. A.; Strunov, L. N.; Khachatryan, M. M.; Shafranov, M. G.;
Korbel, Z.; Rob, L.; Devinski, P.; Zlatanov, Z.; Markov, P.; Khristov, L.; Chernev,
Kh.; Dalkhazhav, N.; Tuvdendorzh, D.

ORG: [Zolin, Kirillova, Liu, Nikitin, Pantuyev, Sviridov, Strunov, Khachatryan,
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(Cheshskoye vyssheye tekhnicheskoye uchilishche); [Devinski, Zlatancv, Markov, Khris-
tov, Chernev] Physics Institute, Bulgarian Academy of Sciences, Sofia (Fizicheskiy
institut Bolgarskoy akademii nauk); [Dalkhazhav, Tuvdendorzh] Institute of Physics
and Chemistry, Mongolian Academy of Sciences, Ulan Bator (Institut fiziki i khimii
Mongol'skoy akademii nauk)

TITLE: Real part of the pn scattering amplitude in the energy interval 2--10 Gev

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu.
Prilozheniye, v. 3, no. 1, 1966, 15-21

TOPIC TAGS: proton scattering, neutron scattering, scattering amplitude, differen-
tial cross section, deuteron reaction

ABSTRACT: On the basis of experimental data obtained by the authors on elastic pd
scattering in the energy interval 1--10 Gev, and information on pp scattering ampli-
tude in this energy range, the authors determined the real part of the scattering

Card 1/2

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ACC NR: AP6006795

amplitude by means of an experiment involving registration of slow recoil deuterons from a film target of deuterated polyethylene 0.5--0.6 μ thick. The investigated range of the squared momentum transfer was $0.003 < |t| < 0.2 \text{ (Gev/c)}^2$. Plots are presented of the differential cross sections vs. the square of the momentum transfer and an empirical formula is given for these plots. The value obtained for the total cross section of elastic pd scattering at 6 Gev is several times smaller than that measured by others. In the small-angle region of pd scattering, constructive interferences were observed between the Coulomb and nuclear scatterings. From the obtained real part of the pd scattering amplitude, and from a comparison of the obtained data with earlier measurements by the authors of the pp scattering amplitude of the same energies (ZhETF v. 50, 76, 1966), the estimated real part of the pn scattering amplitude is +0.2, -0.06, -0.45, and -0.40 for 2, 6, 8, and 10 Gev respectively. The small nonzero real part of the pn scattering amplitude agrees with data obtained at CERN (G. Bellettini et al., Internat. Conf on Elementary Particles, Oxford, 1965). Orig. art. has: 2 figures, 3 formulas, and 2 tables.

SUB CODE: 20/ SUBM DATE: 12Nov65/ ORIG REF: 005/ OTH REF: 005

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SO: East European Accession, Vol. 6, No. 3, March 1957

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1. Predstavena ot prof. P. Verbev, rukovoditel na Katedrata po infektsio-
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1. Ukrainskiy nauchno-issledovatel'skiy institut fiziologii i biokhimi sel'skokhozyaystvennykh zhivotnykh. Predstavleno akademikom AN UkrSSR M.F. Gulym [Hulyi, M.F.].